

IN THE CLAIMS:

Please amend the claims as indicated below.

1. (Currently Amended) An optoelectronic sensor for demodulating a modulated  
5 photon flux (50) comprising:  
a semiconductor region (10);  
at least two collecting zones (20, 22) present in the semiconductor region (10) and  
serving for collecting and tapping off minority carriers (11) generated when said [[a]]  
modulated photon flux (50) penetrates into the semiconductor region (10), [[and]] the  
10 collecting zones (20, 22) being doped inversely with respect to the semiconductor region  
(10);  
characterized by at least two control zones (32, 34) introduced in the  
semiconductor region (10) and serving for generating a drift field in a manner dependent  
on a control voltage that can be applied to the control zones (32, 34), the control zones  
15 (32, 34) being of the same doping type as the semiconductor region (10).
2. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is situated above or in a semiconductor substrate (12), which  
is doped more highly than the semiconductor region (10).  
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3. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is applied on a dielectric (12).
4. (Original) The optoelectronic sensor as claimed in claim 1, wherein the control  
25 zones (32, 34) are at a greater distance from the midpoint of the sensor than the collecting  
zones (20, 22).
5. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is p-doped.

6. (Currently Amended) The optoelectronic sensor as claimed in claim 1, wherein the collecting zones (20, 22) are ~~diffused and doped inversely with respect to the semiconductor region (10).~~

5 7. (Original) The optoelectronic sensor as claimed in claim 1, wherein the collecting zones (20, 22) are produced by local charge transfers in the semiconductor region (10).

8. (Cancelled)

10 9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

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12. (Cancelled)

13. (Currently Amended) A measuring device in particular for 3D distance measurement, comprising

20 at least one optoelectronic sensor as claimed in claim 1 ~~one of claims 1 to 12~~,  
an optical transmitter for generating a modulated photon flux having a predetermined phase,

a device (60) for generating a control voltage, the phase of the control voltage being in a fixed relationship with the phase of the photon flux generated by the  
25 transmitter, and

an evaluation device (40, 42) assigned to the collecting zones (20, 22) and serving for determining the amplitude and the phase of the modulated photon flux with respect to the phase of the control voltage.